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AUTHOR Cairns, Robert B.; Cairns, Beverly D.
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ABSTRACT

Changes from the expected life course can arise from at least three different reasons in longitudinal work: developmental novelty, errors in diagnosis, and errors in expectation. This longitudinal study examined the social development of 220 fourth graders and 475 seventh graders over a period of 10 years with over 98 percent of the original subjects providing returns in the last year. Embedded in the original sample were students identified as being at high risk by being nominated by teachers and principals for aggressive behavior. These high risk subjects were matched with control subjects. It was expected that it would be possible to identify factors that led to changes in trajectory for the students, for good and for ill. At the conclusion of the study the subjects were 17 to 21 years of age. Although changes in behavior were expected, stability was found. The simple procedure of asking teachers and principals to identify the most aggressive students provided robust prediction for later adaptation beyond the school, even for measures of life and death. However, most of the true-positive high risk subjects showed major deflections from trajectory, even though it was rare these changes were maintained. When changes endured it tended to be the result of multiple changes in the circumstances of the child's life. (ABL)

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Risks and Lifelines in Adolescence[1,2]

Robert B. Cairns and Beverley D. Cairns
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27514

"Lifelines" can be a metaphor for the ropes tossed out to save a person who has been swept overboard. Or it could refer to rigid predestination and the "line of life" drawn in one's palm. Depending on the metaphor, one conjures up a picture of heroic intervention, or an image of biological determinism. At first blush, the concept of development seems more consistent with the first metaphor than the second. Development implies change--not fixedness and stability--and we expected numerous modifications over of the course of a lifetime, for good or for ill. Translating either metaphor into science is a tricky business. The reason is that changes from the expected life course can arise for at least three different reasons in longitudinal work.

1. Developmental novelty. One possibility is that the change may be due to new circumstances that arise during the course of living. That is, persons can be entrenched in a given trajectory, then they are deflected from it, for good or for ill. Once an individual is accurately diagnosed, and the trajectory reliably established, we can observe lives in progress to determine if there are significant deflections from expectations, and why they occur.

2. Errors in diagnosis. A second possibility is that what looks to be a developmental change could be an illusion, because the "change" reflected errors in measurement. In the case of measurement-error, apparent changes and instabilities would arise because of mismeasurement. For instance, a person may show large fluctuations in a behavior pattern because the procedures employed at the different time points had large errors of measurement, a point emphasized by Block (1977) and Wohlwill (1973). To correct for errors of measurement, the usual solution is to merge across adjacent data points, average across persons, and correct for attenuation. Curves become smoother and correlations become larger. While this seems entirely reasonable--because of the need to protect against errors of measurement--it creates new hazards. Actual shifts in life course can thereby be eliminated by the statistical corrections. By aggregating across data points and across persons, lives can be made to look a lot more stable than they actually are. It is ironic that statistics which are designed to clarify longitudinal patterns paradoxically can make it harder to recognize changes.

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[2] This paper was read at the 1989 Biennial Meeting of the Society for Research in Child Development (Kansas City, Missouri; April) in a symposium entitled "Surmounting childhood disadvantage: Pathways to change" (Avshalom Caspi, chair).

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3. Errors in expectation. A third possibility is that the researcher may have a faulty understanding of the expected trajectories of development. So a "deflection from expectations" may tell us more about inadequate theoretical expectations than actual empirical shifts. This hazard underscores the need for longitudinal research to theory-guided, not only with respect to measures but also with respect to expected developmental trajectories and the reasons for change from those trajectories.

The logical problem in identifying changes in development is similar to the one encountered with "nonsignificance" in classical hypothesis testing. When one obtains null effects--such as the failure to predict over time--one can't be certain about interpretation, even when a developmental model may have led one to expect low predictability. Hence the bias in longitudinal research has been to search for statistically significant longitudinal coefficients although low individual-difference stability might have been reasonably expected. How to escape the dilemma? A first step is to demonstrate empirically that the measures are robust and that regularities over time can be rigorously identified--if they exist. A second step is to formulate with greater clarity the conditions that would lead one to expect changes in development, and precisely when and why changes should occur.

With these ideas in mind, we began a longitudinal study of social development 10 years ago. We had two cohorts, including a representative sample of 220 boys and girls in the 4th grade, and another sample of 475 male and female adolescents in the 7th grade (Figure 1). Both longitudinal cohorts are seen annually, regardless of whether or not they are in school or have moved. They have have tracked into over 100 school districts over the life of the study, from Alaska to Florida. We have had very good returns and cooperation, and over 98% of the original subjects were seen in the last test wave in 1988. The study is multimeasure. This turns out to be important because of the need to have convergent evidence to plot changes in each annual assessment.

Embedded in the original sample were groups of males and females in each cohort that we identified as being at high risk because of their aggressive behavior. This was done by independent nominations of principals and teachers prior to beginning the study. The 40 extreme risk subjects constituted just over 5% of the total sample. We also identified an individually matched control subject who was the same sex, race, physical size, enrolled in the same classroom, and roughly the same SES, but he/she was not nominated. We selected the two groups because we thought they would show different developmental trajectories, and that it would be possible to identify some of the factors that led to changes in trajectory, for good and for ill.

The subjects are now 17 to 21 years of age. Figures 2 and 3 show how the two matched risk/control groups of females and males now compare in overall social adjustment. The ordinate summarizes a composite variable of severe problems of adjustment collected over the past 6-8 years, based on a configuration of variables, such as school dropout, arrests for serious crime, teenage motherhood, psychiatric residential treatment, and mortality. The maladjustment index ranges from 0 to minus five. Each bar refers to a single girl or boy. This information is aggregated over the seven years after the study began. The magnitude of the problems encountered in the risk groups, both male and female, were considerably more severe than those the matched control groups.

We expected changes, and we got stability. Furthermore, the original categorization was based on a single characteristic of the child, namely,

belief in the contextual relativity of behavior, and the belief that one should not lift a single variable from the social matrix in which it is embedded. The simple diagnostic procedure of asking teachers and principals to identify the most aggressive kids in the school provided robust prediction for later adaptation beyond the school, even for measures of life and death.

But it should be recalled that the figures show an integration of information over a period of 6-7 years. These are lives in progress, and the integration obscured the deflections, changes, and experimental starts that we observed. Indeed, the careful examination of the persons who lives who seemed to not change from the early risk predictions indicated that there were plenty of shifts over adolescence. Virtually all of the true-positive "risk" subjects showed major deflections from trajectory, even though it was rare that the changes were maintained.

Why did some shifts in trajectory become enduring while most did not? The answer seems to lie not simply in the person, but in whether the changes were supported by the other features forces in the person's life. This brings us back to the folly of divorcing a single trend or shift behavior from the broader contexts in which they are embedded. Developmental theorists, from David Magnusson (1988) to Urie Bronfenbrenner (1979) argue for the necessity of considering regulatory constraints across levels, from individual to dyad to social network to society. Furthermore, our data indicate that biases which operate at one level are usually correlated with those that operate at other levels. These systems collaborate rather than compete, and they funnel behavior in the direction that best suited for the context in which development occurs.[3] The further one departs from an established trajectory--to a point--the stronger are the forces that push pull the individual back.

The forces recur and are mutually supportive over the life course, not merely at its beginning. There is often a "catch up" (or "slow down") effect in social development that parallels Tanner's (1962) description of physical development. It is not that potentials for change don't exist--they seem to occur daily. We suggest that they do not endure because of the balance of external and internal constraints. There usually exists a "developmental homeostasis." in social development because of coincident vulnerabilities.[4]

One of the girls in this study illustrates the point.

> Janet is female "J" in the risk group. When identified in the 4th grade, she was socially inept, prone to conflict, and a poor student. In the first behavioral observations, it was clear that she was too big for her class and her boots were too big for her (it was early January, and she she stomped about the classroom in oversized cowboy boots she had received as a Christmas present). Sociometric cluster analysis indicated that she had one friend in the class, but that girl was also at the bottom of the social structure. When asked about friends in the

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[3] The biases that keep individuals on a given developmental trajectory were expected to be multilevel, and they emerge in different forms at the several stages of ontogeny. Our ideas on this matter have been outlined in greater detail elsewhere (e.g.., Cairns, 1979; Cairns & Cairns, in press; Cairns, Gariépy, and Hood, in press).

[4] This investigation was guided by a consideration of the biases that exist social development. Specifically, we anticipated that there would be evidence for developmental homeostasis in behavioral development akin to genetic homeostasis in phylogeny (Lerner, 1954).

at the bottom of the social structure. When asked about friends in the 4th grade, she sobbed that she had one friend, and that was the teacher. Though her family was legally intact, it had major problems. Her older brother was in prison and her mother was periodically in residential psychiatric care.

Then something truly beneficial happened the next year. She was moved across three schools, and she finally landed in a class where she had a superb and sensitive teacher. Janet responded splendidly: she was no longer considered a problem in school, and she had friends and accomplishments. She looked better and acted better. We chalked this up as a real change in trajectory. The school thought so too. Janet did so well that she was promoted to middle school. Janet clearly had some competencies, but they had been previously concealed by other factors.

But from then on, it was downhill. She got into fights daily at middle school, one time breaking a chair by throwing it at one of the more aggressive boys in the school--who promptly tossed it back at her. She was taken to court for skipping school, and more recently she was arrested on a series of drug and assault charges. Although there were several attempts at intervention over the last eight years--by persons who genuinely cared for her and were sensitive to her needs--the constraints on her life were too overwhelming. As she entered mid-adolescence, she qualified for social and sexual relationships which, in turn, supported and consolidated correlations with behavioral and familial constraints. She had great difficulty in getting a legitimate job, and when she landed one, she didn't have the skills to keep it. So she stayed home in her family's trailer, alone much of the time, until she got involved in less legitimate pursuits. Although she is categorized as a case of high risk and high predictability, her life has been anything but stationary and unchanging. The potential for change was clearly present, and her behavior underwent periodic beneficial changes. But these modifications, though real, expired. They were insufficient to engage her into a different, more conventional trajectory of social behavior.

Janet's life does not stand alone. Despite the seeming regularity of outcomes depicted, not one of the individuals was as stable, predetermined, or without hope as the figures suggest. Obscured in the summaries was the fact that each person had benefitted from real changes in their life course. Some of these were momentary, some of them lasted a week, and, less frequently, some lasted a year. which were then erased by subsequent events. And some endured. It is not that opportunities for change don't exist--they occur daily. We suggest that they do not endure because of the balance of external and internal biases.

Up to this point, we have focussed only on the developmental outcomes of a small extreme subgroup and their individually matched control group. What about the dynamics of change and stability in the broader longitudinal sample? In one study we employed the entire Cohort II (N=475) to analyze the developmental events that were associated with early school dropout (i.e., leaving school prior to completing the 11th grade). In the initial analysis, we employed logistic multiple regression analyses to determine associations between (1) the criterion of dropout by the 11th grade and (2) predictor variables obtained in the 7th grade (at the beginning of the study). The logistic regression outcomes demonstrated high predictability. Among other findings, the results show that those subjects who leave school early tend to be kids who, in the 7th grade, are judged to be highly aggressive and who have already failed a grade (see Figure 4, Cairns, Cairns, & Neckerman, in press).

But while the predictive equation is informative, it doesn't tell us much about why particular children drop-out even though they have not experienced prior school failure or poor relationships. For this information, it is necessary to go beyond parametric variable-oriented methods to what David Magnusson (1988) has called person-oriented analysis. Our strategy was to identify homogeneous groups within the 475 persons, then to plot the developmental trajectories for each group. We employed multivariate clustering to identify clusters of kids with similar profiles at the beginning of the study, including SES, popularity, school performance, maturation level, appearance, peer reputation, as well as measures of conflict and aggression. Following Magnusson and Bergman's lead, we extracted seven clusters.

The developmental trajectories leading to dropout are clearly different for the seven clusters. This is true for both boys and girls.[5] For example, over 80% of the males in one group dropped out, vs. 0% to 2% in other groups. Because the dropout rate for girls is somewhat lower (11% vs. 18%), the differences among clusters are somewhat attenuated. Nonetheless, there are large discrepancies as a function of the dropout rate; from 47% to 0% (Figures 5 and 6).

Overall, we have been struck by the conservatism and regularity in the life course of these subjects, despite the dynamic changes that occur in their lives on virtually a daily basis. When enduring changes in trajectory did occur, they were not in a single characteristic but in whole configurations of influence. These configurations included drastic changes in family structure (adoption, emancipation), movement to an entirely different region (beyond the Arctic Circle in one case), supportive marriages (some of which endured), and influential persons at school or home who intervened at multiple levels. But in adolescence, there seem to be as many negative shifts as positive ones.

A couple of remarks on interpretation. Lives undergo constant change, and so do forces that operate upon them. We found, for example, in our analyses of social networks that cliques become increasingly segregated as our subjects moved from the 4th and 5th grades to the 7th and 8th grades. Similarly, socioeconomic class became highly salient about the time subjects began to get involved in dating and heterosexual parties. The sociocultural forces of school, home, and the community that were latent in childhood operated like a sledgehammer in adolescence. The "latency period" takes on new meaning when these social influences are considered. Rather than a phase of quiescence, latency may be a period where children are permitted to cross boundaries and explore friendships that will be closed to them after the next five years of their lives.

Risk is usually seen as a failure in life, and perhaps it is. But for some adolescents, behaviors such as school dropout and aggression--may also be part of their plans and expectations. At least some individuals are fitting into the roles for which they have been groomed by their families. The values of the researcher and the larger society are not always the values of subjects and their social networks, and we should be sensitive to the difference.

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[5] The strength of association is striking when one considers the information left out of the 7th grade clustering. Only school-based information was employed to establish the clusters. No family information, other than SES class, was included as a clustering variable. Nor was ethnic class data or psychological test information included, other than teacher evaluations.

Even though our findings indicate that, for most persons, there are impressive continuities in social adaptation, we have observed that some children who show significant changes over the life course. Where the happy changes have endured, it was because they did not stand alone. In one such case, a sympathetic coach intervened with the boy's parents, other teachers, and inspired the kid himself. In another case, the mother remarried, reclaimed her children from the county residential home, and took them far away, north of the Yukon. When they endure, successful interventions were associated with other major and correlated changes in the circumstances of the child's life, including changes in the child's owr behaviors and goals. Taken alone, single changes tended not to survive.

We found more regularity in individual lives than we thought we would find, or should find. But these lives were not predestined--as in the palm of one's hand--so much as they were kept on course by correlated forces from within and without. The topic of palm reading brings up speculations about chance events in development. What about happy circumstances where, by chance, one's life is turned around? Our data suggest that chance events do indeed occur. In fact, they occur every day, but most of them don't have an enduring effect. There are few big lottery winners in the chance business. Whether there is enduring change depends upon the circumstances in which the chances occur, and how much the chance event is permitted to reorganize those biases.

Adolescence is popularly viewed as a period of emancipation, and the emergence of a new self-identity. But for most of our subjects, adolescence has a different message. For them, it is a moment of truth where the constraints of their social and academic opportunities emerge with a heavy hand. The 10 year old who wanted to be a brain surgeon becomes 14 year old who wants to become a secretary, and this 14 year old becomes the 17 year old dropout who lives with her boyfriend's family and works the midnight shift at the local "Seven-Eleven" convenience store. But she is happy to have a job and a place to live. Society doesn't operate abstractly at this stage; it is represented in the social networks open to them, in the jobs they can get, in the places they can go, and in the people they can live with or marry. For many adolescents, their ideas and attitudes about themselves are more likely to change than are their trajectories of social development. As cognitive dissonance would have it, thoughts and attitudes are more malleable than reality.

There is considerably more regularity in individual lives than we thought we would find, or should find. Lives seem not to be predestined so much as they are kept on course by correlated forces from within and without. Yet there are instances of remarkable and durable shifts in trajectory. In those cases of enduring and productive change, there is an engagement of internal forces--Norman Garmezy has called them "concealed competencies"--coupled with changes in the familial, peer, school, or broader social system. Understanding how these forces operate over time in individual lives should be useful in designing social interventions.

References

Block, J. Recognizing the coherence of personality. In D. Manusson & N. D. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology. Hillsdale: Erlbaum, 1977.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by natural design. Harvard University Press.

Cairns, R. B. (1979). Social development: The origins and plasticity of interchanges. San Francisco: Freeman.

Cairns, R. B., & Cairns, B. D. (in press). Social cognition and social networks:A developmental perspective. In D. Pepler and K. Rubin (Eds.), Aggression in childhood: The Earlscourt symposium. (1989)

Cairns, R. B., Cairns, B. D., & Neckerman, H. J. (in press). Early school dropout: Configurations and determinants. Child Development (December, 1989)

Cairns, R. B., Gariépy, J-L., & Hood, K. E. (in press). Development, microevolution, and social behavior: Dual genesis and coincident adaptation. Psychological Review (January, 1990)

Lerner, I.M. (1954). Genetic homeostasis. Edinburgh & London: Oliver & Boyd.

Magnusson, D. (1988). Individual development from an interactional perspective: A longitudinal study. Hillsdale, NJ: Lawrence Erlbaum Associates.

Tanner, J. M. (1962). Growth at adolescence. Oxford: Blackwell Scientific Publications.

Wohlwill, J. (1973). The study of behavioral development. New York: Academic.

Table 1

CLS Longitudinal Project through 1988

Cohort I							
Grade	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**
Year	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
N	(220/220)	(199/220)	(194/220)	(192/220)	(199/220)	(209/219)	(214/219
Recovery	**1.00**	**.90**	**.88**	**.87**	**.90**	**.95**	**.98**
Cohort II							
Grade		**7th**	**8th**	**9th**	**10th**	**11th**	**12th**[a]
Year		1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
N		[475/475]	[456/474]	[446/474]	[447/472]	[461/472]	[337/340
Recovery		**1.00**	**.96**	**.94**	**.95**	**.98**	**.99**

[a] Embedded in each cohort are subsets of males and females who were judged to be extremely aggressive on the basis school nominations by two or more principals/counselors/teachers. Non-nominated subjects were individually matched on the basis of sex, race, classroom attended, and physical size.

[b] Cohort II, Squad A data are shown in 12th grade for 1987-88; Cohort II Squad B data for 1987-88 appears in the 11th grade. Squad B recovery rate in 1987-88 was also .99 (131/132).

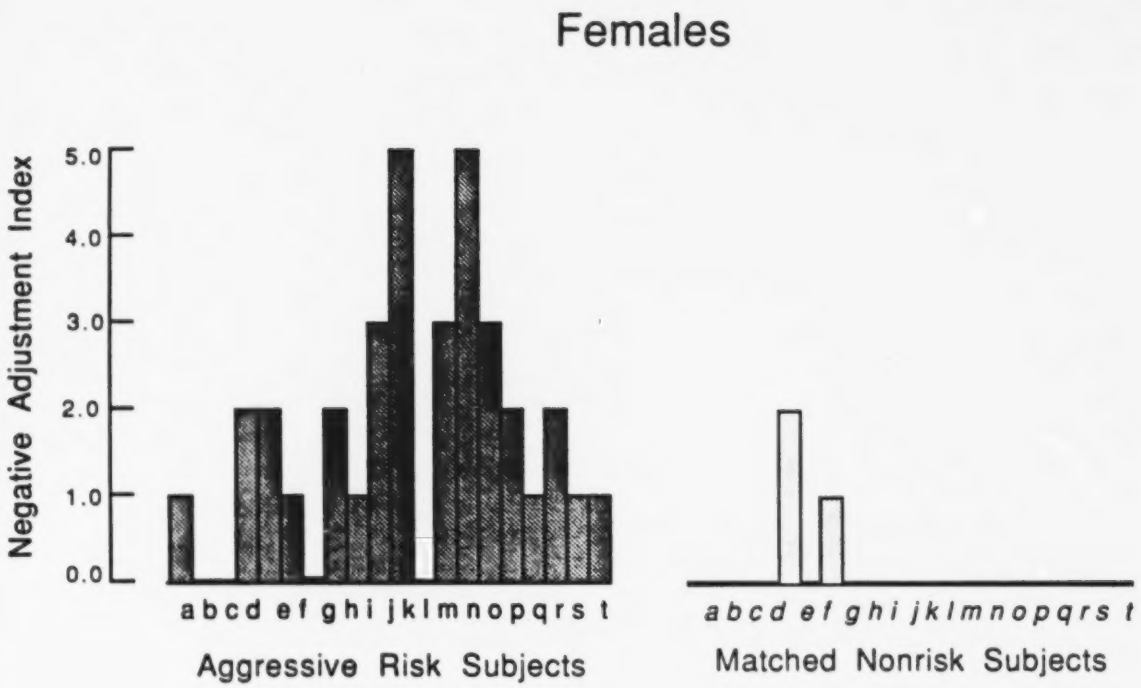
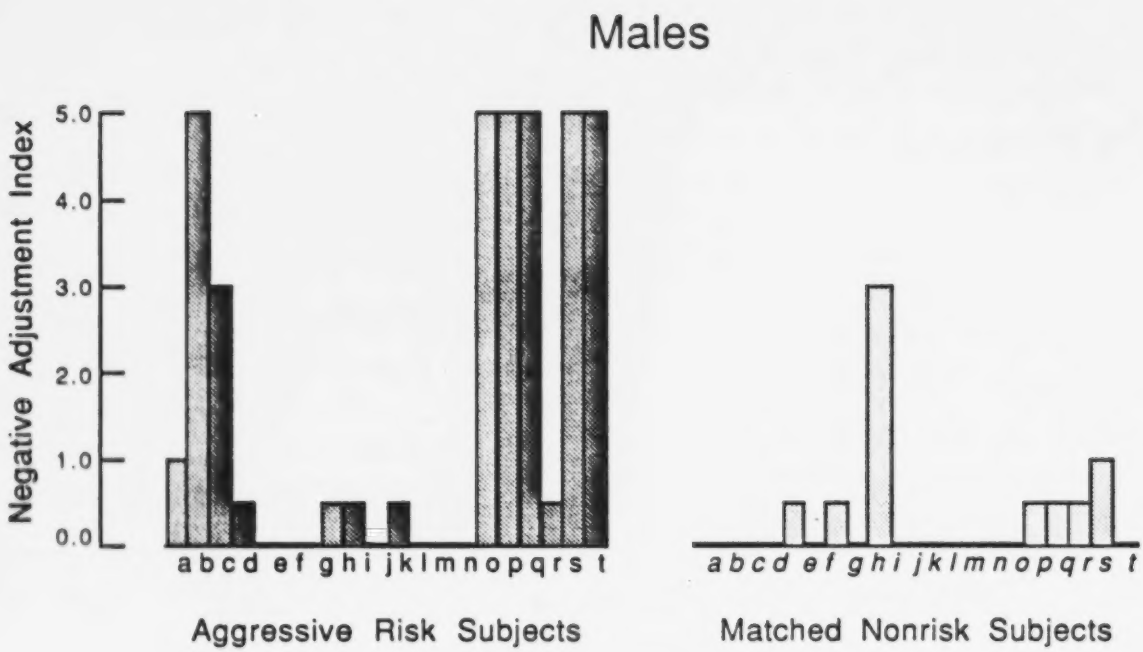

Females
Negative Adjustment Index
5.0
4.0
3.0
2.0
1.0
0.0
a b c d e f g h i j k l m n o p q r s t
Aggressive Risk Subjects
a b c d e f g h i j k l m n o p q r s t
Matched Nonrisk Subjects

Figure 2: Negative adjustment scores for aggressive risk and matched control subjects (Females, N = 20 pairs)


Males
Negative Adjustment Index
5.0
4.0
3.0
2.0
1.0
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a b c d e f g h i j k l m n o p q r s t
Aggressive Risk Subjects
a b c d e f g h i j k l m n o p q r s t
Matched Nonrisk Subjects

Figure 3: Negative adjustment scores for aggressive risk and matched control subjects (Males, N = 20 pairs)

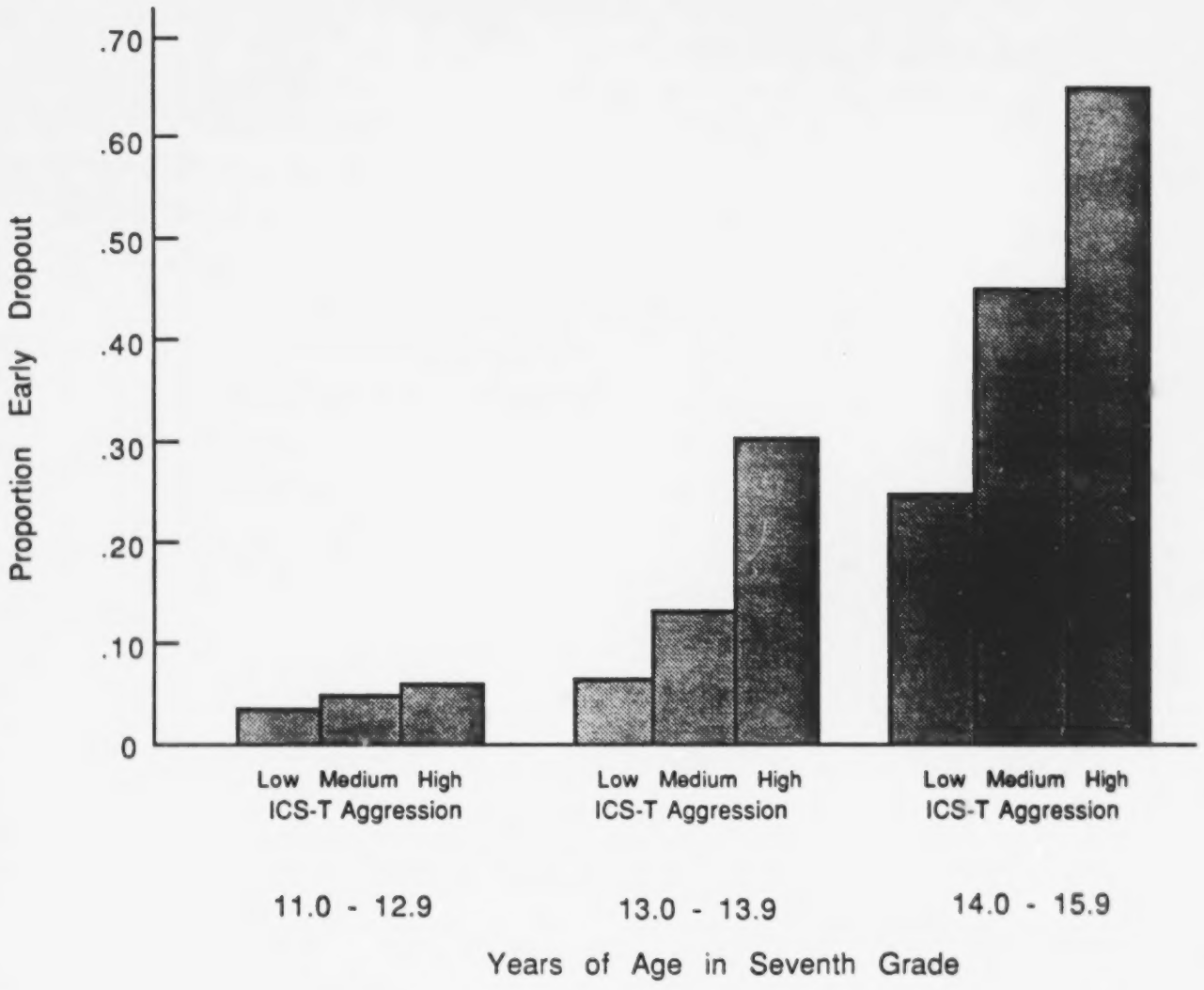

Figure 4. Proportion early dropout as a joint function of (a) years of age in the 7th grade and (b) ICS-T ratings on the aggressive factor (N=467, males and females combined).

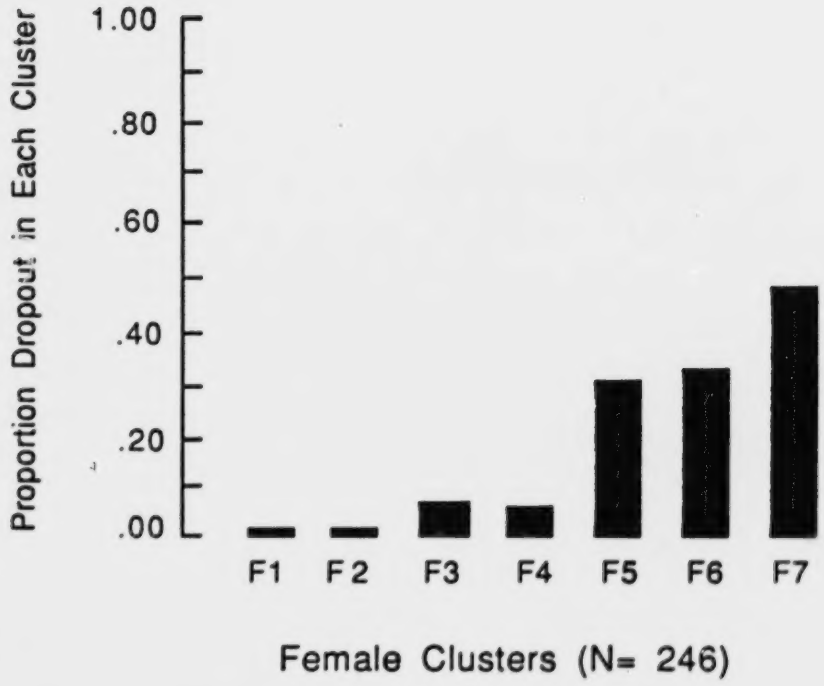

Fig. 5. Proportion of girls in each of the seven clusters which had been identified in the 7th grade which dropped out of school before the end of the 11th grade (i.e., conditional probability of drop, given cluster membership). From Cairns, Neckerman, & Cairns, in press.

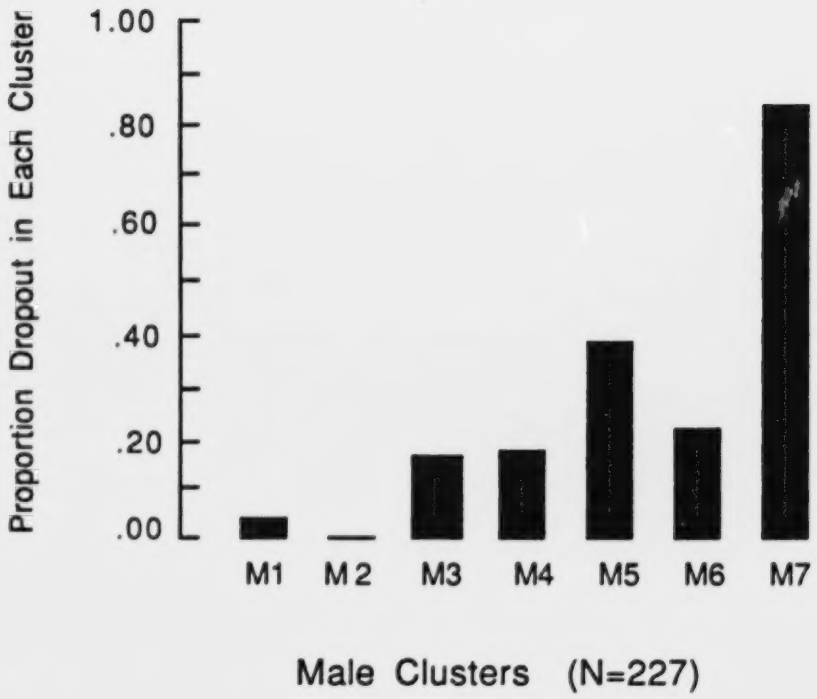

Fig. 6. Proportion of boys in each of the seven clusters which had been identified in the 7th grade which dropped out of school before the end of the 11th grade (i.e., conditional probability of drop, given cluster membership). From Cairns, Neckerman, & Cairns, in press.